

Application No.: 09/683,298

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-4 [Cancelled]

5. [Currently Amended] An apparatus, comprising:
a plurality of deposit elements to deposit biological materials on a depositing surface;
a first mounting assembly operatively coupled to enable movement of the deposit elements, wherein the first mounting assembly comprises a first rotatable element and permits the deposit elements to rotate around a first axis perpendicular to the depositing surface;
a second mounting assembly operatively coupled to enable movement of the deposit elements, wherein the second mounting assembly comprises a second rotatable element and permits the deposit elements to rotate around a second axis parallel to the depositing surface; and
a third mounting assembly operatively coupled to enable movement of the deposit elements, wherein the third mounting assembly comprises a third rotatable element and permits the deposit elements to rotate around a third axis to the depositing surface.

6. [Original] The apparatus of claim 5, wherein:
the deposit elements include pins, quills, or jetting elements.

7. [Original] The apparatus of claim 5, wherein:
the second and third axes are perpendicular to each other.

8. [Currently Amended] The apparatus of claim 5, wherein:
the first mounting assembly is movable rotates independently of one or both of the second and third mounting assemblies such that movement rotation around the first

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axis is uncoupled from ~~movement-rotation~~ around one or both of the second and third axes, respectively.

9. [Currently Amended] The apparatus of claim 5, wherein:

the second mounting assembly is ~~movable-rotates~~ independently of one or both of the first and third mounting assemblies such that ~~movement-rotation~~ around the second axis is uncoupled from ~~movement-rotation~~ around one or both of the first and third axes, respectively.

10. [Previously Amended] The apparatus of claim 5, wherein:

the depositing surface is a surface of a substrate; and
the apparatus further comprises a holding element to hold the substrate.

11. [Original] The apparatus of claim 10, wherein:

the depositing surface is substantially flat.

12. [Previously Amended] The apparatus of claim 10, wherein:

the substrate includes a second substantially flat surface parallel and opposed to the depositing surface; and

the holding element includes a platen having a substantially flat surface to conformingly receive the second surface of the substrate.

13. [Original] The apparatus of claim 12, wherein:

the substrate includes a microscope slide.

14. [Previously Amended] The apparatus of claim 5, further comprising:

one or more reference planes for registering the deposit elements.

15. [Previously Amended] The apparatus of claim 14, wherein:

the depositing surface includes a top surface of a microscope slide; and

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the one or more reference planes includes a yaw reference plane perpendicular to the first axis.

16. [Currently Amended] The apparatus of claim 5, further comprising:
one or more securing elements to secure the deposit elements at a first position with respect to movement-rotation around the first axis, a second position with respect to movement-rotation around the second axis, and a third position with respect to movement-rotation around the third axis.
17. [Original] The apparatus of claim 16, wherein:
the first, second, and third positions are determined so that biological materials are deposited from each of the deposit elements at substantially a ninety degree angle to the depositing surface.
18. [Original] The apparatus of claim 5, wherein:
the first mounting assembly includes one or more bearing surfaces concentric with the first axis.
19. [Previously Amended] The apparatus of claim 18, further comprising:
a gantry; and wherein
the first mounting assembly further includes a print head mount to mount the first mounting assembly to the gantry, and a head mounting plate coupled to the deposit elements and including the one or more bearing surfaces.
20. [Original] The apparatus of claim 5, wherein:
the first mounting assembly provides yaw adjustment using two or more reference surfaces.
21. [Original] The apparatus of claim 20, wherein:

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the yaw adjustment includes rotating the depositing elements about the first axis without additional translation in a plane parallel to the depositing surface.

22. [Currently Amended] An apparatus, comprising:

a first mounting assembly operatively coupled to enable movement of a plurality of biological deposit elements, wherein the first mounting assembly comprises a first rotatable element and permits the deposit element to rotate around a first axis;

a second mounting assembly operatively coupled to enable movement of the biological deposit elements, wherein the second mounting assembly comprises a second rotatable element and permits the deposit elements to rotate around a second axis different from the first axis; and

a third mounting assembly operatively coupled to enable movement of the biological deposit elements, wherein the third mounting assembly comprises a third rotatable element and permits the deposit elements to rotate around a third axis different from the first and second axes.

Claims 23-33 [Cancelled]